

STUDIES IN AMERICAN SPIDERS: GENERA, CORNICULARIA, PARACORNICULARIA, TIGELLINUS, WALCKENAERA, EPICERATICELUS AND PELECOPSIS, WITH DESCRIPTIONS OF NEW GENERA AND SPECIES

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CORNICULARIA Menge

Preussische Spinnen p. 226. 1868.

Type. *Cornicularia unicornis* Cambridge.

In this genus the abdomen is without hardened sclerites and the males do not have holes in the head. The tibia of the male palpus has a long apophysis either single or double with a deep rounded emargination on the lateral side. The embolic division of the bulb is of the spiral type as in Grammonota, Ceraticelus, Ceratinella and Ceratinopsis, approaching more closely the latter. There is no break in the embolus near the tip as in Ceraticellus and Ceratinella. The males exhibit as a secondary sexual character a single or double horn-like process arising from the median ocular area. It does not seem useful to retain longer the genus *Prosopotheca* based on the size and arrangement of the eyes since a division of the group on these characters separates in some cases species otherwise very closely related.

Species described as Cornicularia placed elsewhere

Cornicularia monticolens Chamberlin. Ent. Soc. Am. Annals 12: 251, 1919. Now placed in *Spirembolus*. See Cal. Acad. Sci. Proc. (Ser. 4) 14: 113, 1925.

Cornicularia formosa Banks. Phila. Acad. Nat. Sci. Proc. 1892, p. 34. Now placed in *Ceratinopsidis*. See N. Y. Ent. Soc. Jour. 38: 29. 1930.

Cornicularia recurvata Banks. Wash. Acad. Sci. Proc. 2: 479. 1900. Placed in *Walckenaera* by Petrunkevitch. The form of the horn and of the tibial apophysis would exclude it from *Cornicularia*.

Cornicularia varipes Banks. Wash. Acad. Sci. Proc. 2: 479. 1900. Placed in *Walckenæra* by Petrunkevitch. Without the male this species cannot be placed with certainty.

A species described as Prosopotheca and its subsequent history Prosopotheca transversa Crosby. Phila. Acad. Nat. Sci. Proc. 1905 p. 333.

This was based on an immature female of *Bathyphantes formica* Emerton. This species was redescribed again from a female by Petrunkevitch (N. Y. Ent. Soc. Jour. 33: 173. 1925) as *minutum* for which he erected the new genus *Tennesseellum*. Later (Conn. Acad. Sci. Trans. 29: 125, 1928) he erected for this genus the new sub-family Tennesseellinæ in the Linyphiidæ. That this species needs a sub-family or even a separate genus for its reception is extremely doubtful. The fact that the spiracular sulcus is some distance in front of the spinnerets is evidently the result of a modification towards becoming an ant-mimic. In other respects it is closely related to other species of the group. The position of the spiracular sulcus is of specific value only in *Hahnia* and of generic significance only in the Anyphæninæ (*Anyphæna* and *Gayenna*).

KEY TO THE AMERICAN SPECIES OF CORNICULARIA, MALES

- | | |
|--|-------------------------|
| 1. Cephalic horn single..... | 2 |
| Cephalic horn double..... | 5 |
| 2. Tibial apophysis single..... | 3 |
| Tibial apophysis double | 4 |
| 3. Horn erect (Figs. 37-38)..... | <i>minuta</i> Em. |
| Horn low, not higher than the posterior eyes (Figs. 8-9)..... | <i>brevicula</i> n. sp. |
| 4. Horn clavate (Figs. 21-22)..... | <i>clavicornis</i> Em. |
| Horn not clavate (Figs. 1-2)..... | <i>auranticeps</i> Em. |
| 5. Horn short..... | 6 |
| Horn long..... | 8 |
| 6. Horn nearly erect..... | 7 |
| Horn directed forward, upper lobe overhanging the lower (Figs. 15-16)..... | <i>brevicornis</i> Em. |
| 7. Length 1.4. Tibial apophysis minutely dentate laterally. | |
| Head not noticeably darker than thorax (Figs. 52-56)..... | <i>tumida</i> n. sp. |
| Length 2.6. Tibial apophysis not minutely dentate laterally. Head noticeably darker than thorax (Figs. 43-48)..... | <i>pallida</i> Em. |
| 8. Cephalothorax chestnut brown..... | 9 |
| Thorax orange..... | 11 |

- 9. Horn noticeably narrowed at base, upper lobe rounded (Figs. 49 and 51) *tibialis* Em.
 Horn not of this form 10
- 10. Horn long and slender (Figs. 27-28) *directa* Cambr.
 Horn shorter and thicker (Figs. 6-7) *breviaria* n. sp.
- 11. Thorax orange, head slightly dusky.
 Abdomen dark gray (Figs. 24-26) *communis* Em.
 Thorax reddish orange, head nearly black. Abdomen yellow (Figs. 34-36) *indirecta* Cambr.

Cornicularia auranticeps Emerton
 (Figures 1-5)

Cornicularia auranticeps Emerton. Conn. Acad. Sci. Trans. 6: 43, pl. 8, fig. 6. 1882.

Cornicularia auranticeps Simon. Hist. Nat. Ar. 1: 626. 1894.

Male. Length, 2.2 mm. Cephalothorax bright orange yellow, viewed from above evenly rounded on the sides, slightly constricted at the cervical groove, broadly rounded across the front; viewed from the side steeply ascending behind and then gently rounded over to the base of the horn. Median ocular area occupied by a rather thick short, single, flat-topped horn, directed slightly forward. Clypeus almost vertical and very slightly concave. Viewed from above the horn is seen to be fringed on each side by a row of short recurved hairs.

Posterior eyes in a procurved line, equal, the median separated by the radius and from the lateral by the diameter. Anterior eyes in a very slightly recurved line, the median a little smaller than the lateral, subcontiguous and separated from the lateral by the radius.

Sternum, labium and endites bright orange yellow. Coxæ, trochanters and femora orange yellow like the cephalothorax; the tip of first and second femora and succeeding segment distinctly dusky. Abdomen black. Femur of palpus rather long, slender, and slightly curved inward. Patella short, straight and slightly widened distally. Ratio of length of femur to that of patella as 11 to 4. Tibia short provided dorsally with two long, incurved divaricate apophyses. The lateral apophysis strongly curved inward distally and finely denticulate across the truncated margin. Tailpiece of the embolic division rather long, distinctly bent, the tip reaching to the edge of the tegulum.

The embolus rather slender making one complete flat turn around the end of the bulb.

Female. Length, 2.5 mm. Similar to male in form and color. Posterior eyes in a very slightly recurved line, equal and equidistant separated by a little less than the diameter. Anterior eyes in a recurved line, the median slightly smaller than the lateral, subcontiguous, separated from the lateral by a little less than the radius. The epigynum has the middle lobe slightly oval in outline overlaid in front by a broad, rounded lobe projecting backward.

We are indebted to Mr. Nathan Banks of the Museum of Comparative Zoology for the loan of the specimen from Holliston, Mass.

Massachusetts: Holliston, Nov. 29, 1923. 1 ♂ (Emerton).

New York: Albany, June 2, 1921. 1 ♀; Little Pond, Orange Co., May 25, 1920. 1 ♀.

***Cornicularia breviaria* new species**

(Figures 6-7)

Male. Length, 2.2 mm. Cephalothorax chestnut brown; viewed from above rather long and narrow, evenly rounded on the sides, slightly constricted at the cervical groove and narrowed towards the front, the front not in view because of the horn. Cephalothorax viewed from the side rather steeply ascending behind and then almost straight to the tip of the horn. Clypeus almost straight and somewhat retreating.

Posterior eyes in a slightly procurved line, equal, the median separated by one-third of the diameter and from the lateral by two-thirds of the diameter. Anterior eyes in a slightly recurved line, equal, the median subcontiguous and a little farther from the lateral.

Sternum dusky orange darker at the margin. Labium and endites lighter. Legs orange. Abdomen dark gray almost black. Tibia and tarsus like that of *brevicornis*.

Holotype male. Interlaken, New York. Nov. 26, 1915.

***Cornicularia brevicula* new species**

(Figures 8-11)

Male. Length, 2.1 mm. Cephalothorax dark brown, almost black; viewed from above noticeably broad, evenly rounded on the sides, slightly constricted at the cervical groove and broadly and bluntly rounded across the front; viewed from the side, gently ascending behind in a straight line to the cervical groove where there is a broad shallow depression, then evenly rounded over the head to the posterior eyes. Just in

front of the posterior median eyes there is a very small short horn clothed with a few recurved hairs. Clypeus almost vertical and slightly concave.

Posterior eyes in a very slightly recurved line, the median slightly smaller than the lateral, separated by the radius and a little farther from the lateral. Anterior eyes in a slightly recurved line, equidistant, separated by less than the radius. Sternum dark brown, black at margin. Labium black, lighter at tip. Endites dusky orange. Legs and palpi yellow tinged with orange. Abdomen light greenish gray.

Femur of palpus cylindrical and slightly curved inward. Patella rather stout. Ratio of length of femur to that of patella as 24 to 12. Tibia short and broad with a long stout incurved dorsal process which is deeply excavated laterally to form a deep concavity, on the mesal side it is gradually widened at the middle forming a low lobe. The tip of this apophysis is very thin, rounded and lies close to the cymbium. The whole apophysis and the opposing lateral lobe of the tibia is deeply hollowed out to form a groove. The paracymbium is rather stout, strongly curved but without a distinct notch before the tip. The tail-piece of the embolic division is flat and bluntly pointed with the tip lying in a notch of the tegulum. The terminal part of the embolic division consists of a stylus which is broad at the base and rapidly narrows distally. It is spirally coiled in one turn about the end of the bulb. The tip is straight and projects tangentially to the soil.

Holotype male, New York: Mt. Marcy, Aug. 27, 1930. Two ♂ specimens were taken, one not fully colored.

Cornicularia brevicornis Emerton

(Figures 12-17)

Cornicularia brevicornis Emerton. Conn. Acad. Sci. Trans. 6: 42, pl. 11, fig. 5, 1882.

Prosopotheca brevicornis Simon. Hist. Nat. Ar. 1: 626. 1894.

Male. Length, 2.6 mm. Cephalothorax reddish orange, the whole head darker; viewed from above elongate, the sides evenly rounded on the thoracic part, a broad shallow constriction at the cervical groove in front of which the sides are again rounded; viewed from the side rather steeply ascending behind, nearly level along the back and then gradually ascending and rounded over the head to the posterior eyes. The horn is short and blunt and not elevated above the level of the posterior median eyes; clothed in front and on the sides with short, stiff recurved hairs, a median longitudinal strip bare. The lower member short and

closely applied to the upper part, in side view right-angled. Clypeus nearly straight, somewhat retreating.

Sternum orange, smooth, sparsely clothed with stiff black hairs; endites a little lighter. Legs orange yellow. Abdomen dark gray.

Posterior eyes in a slightly procurved line, the median slightly smaller than the lateral, separated from each other by twice the diameter and from the lateral by the diameter. Anterior eyes in a slightly recurved line, the median smaller than the lateral, separated by the radius and a little further from the lateral.

Femur of palpus straight and nearly the same thickness throughout its length; patella short, arched above and only a little wider distally; tibia without the apophysis short and greatly widened, dorsally armed with a very long, stout, black, process which curves laterally over the face of the cymbium; mesally, at the base of the process there is a squarish lobe, laterally from the process there is a large, deep semicircular notch, the margin of which is hollowed out to form a deep groove, this groove extending to the tip of the apophysis. Paracymbium rather stout, strongly curved with a blunt, black, tooth which is hooked at the tip. Tail-piece of the embolic division thin and pointed, forming nearly a right angle with the middle part, the terminal part broad and stout at base but soon narrowing into a smooth curved black rod which makes one small, complete turn around the tip of the bulb.

Female. Length, 2.5 mm. Similar to the male in color. Posterior eyes in a straight line, the median slightly smaller than the lateral, separated by the radius and from the lateral by a little less. Anterior eyes in a slightly recurved line, all subcontiguous, the median smaller than the lateral. The epigynum rectangular in outline. The middle lobe broad behind and narrowed toward the front, with its posterior margin gently biconvex.

Type locality: New Haven, Conn.

Allotype locality: Columbia, Mo.

New York: Riverhead, April 11, 1923, 2 ♂; Mt. Whiteface, Aug. 22, 1916, 1 ♂.

Massachusetts: Cambridge, April, 1906, 1 ♂, 1 ♀.

Illinois: Salts, May 24, 1926, 1 ♂ (Smith).

Missouri: Columbia, Nov. 1905, 1 ♂ 2 ♀; without date 1 ♂; 1905; Dec., 1904, 2 ♀; Nov. 22, 1904 (on fence), 2 ♀.

Georgia: Tallulah Falls, Oct. 18, 1926, 1 ♂.

Cornicularia clavicornis Emerton

(Figures 18-23)

Cornicularia clavicornis Emerton. Conn. Ac. Sci. Trans. 6: 43. pl. 8, fig. 6. 1882.

Cornicularia clavicornis Simon. Hist. Nat. Ar. 1: 626. 1894.

Cornicularia clavicornis Crosby. Phila. Acad. Nat. Sci. Proc., p. 308. 1905.

Male. Length, 2 mm. Cephalothorax dusky orange, head not noticeably darker; viewed from above rounded on the sides, convergent towards the front, broadly rounded across the front, the horn not projecting in front of the clypeus; viewed from the side gently arched to the posterior eyes. The horn nearly quadrate in side view, slightly wider at top than at base and directed obliquely forward. Clypeus very slightly concave and almost vertical.

Posterior eyes in a procurved line, equal, the median separated by a little less than the diameter and from the lateral by slightly more. Anterior eyes in a very slightly recurved line, the median a little smaller than the lateral, subcontiguous and separated from the lateral by a little less than the radius.

Sternum and labium dusky orange darker at margin; endites yellow, lighter at tip. Legs orange yellow. Abdomen dark gray.

Femur of palpus moderately stout, slightly curved downward, gradually widened distally; patella nearly straight. Ratio of length of femur to that of patella as 16 to 7. Tibia very short and provided with two very long apophyses, the lateral apophysis is slender, gently curved and stands out free from the cymbium. The mesal apophysis lies close to the cymbium and curves under the lateral apophysis. At some distance before the tip, it widens to form a broad tooth on the lateral side, the tip of which is finely dentate. The tip of this apophysis is narrow, rounded and incurved. The paracymbium is strongly curved,

without a distinct notch before the tip. The bezel broad and straight across the edge. Tail-piece of the embolic division relatively small, the tip curved around toward the edge of the cymbium. The terminal part consists of a long, stout, black style which is curved in a circle around the tip of the bulb and is accompanied by a membranous conductor.

Female. Length, 2.5 mm. Similar to male in form and color. Epigynum has the middle lobe rather broad and light colored, the hind margin is slightly raised and in the middle there is a slightly raised protuberance.

Type locality: Mt. Washington, N. H.

New York: Artist's Brook, Chapel Pond, Essex Co., June 28, 1923, 1 ♂ 1 ♀. Sifted from moss on rocks forming ice caves under which the ice persists throughout the year; Wilmington Notch, Aug. 26, 1921, 1 ♀.

Alberta: Sulphur Mt., Banff, Aug. 2, 1927, 1 ♂.

Wyoming: Grand Canyon, Yellowstone Nat. Park, Aug. 30, 1927, 1 ♂.

Cornicularia communis Emerton

(Figures 24-26)

Cornicularia communis Emerton. Conn. Acad. Sci. Trans. 6: 41, pl. 11, fig. 3. 1882.

Lophocarenum arvense Banks. Phila. Acad. Nat. Sci. Proc. 1892, p. 37, pl. 4, fig. 11.

Prosopotheca communis Simon. Hist. Nat. Ar. 1: 626, 1894.

Prosopotheca communis Crosby. Phila. Acad. Nat. Sci. Proc. 1905, p. 330.

Male. Length, 2.5 mm. Cephalothorax orange, slightly suffused with dusky on the head; viewed from above rather elongate, evenly rounded on the sides of the thorax, slightly constricted at the cervical groove, then with the sides strongly convergent but with the outline distinctly convex; viewed from the side, steeply ascending behind and then gradually to the posterior eyes with a very slight broad depression at the cervical groove. The median ocular area occupied by a large stout blunt horn the tip of which is densely clothed with short erect hairs. The lower horn is very small and closely applied to the upper one. Clypeus nearly vertical, concave.

Posterior eyes in a procurved line, the median separated by a little more than the diameter and from the lateral by the diameter. Anterior eyes in a straight line, the median much smaller than the lateral, separated by the radius and from the lateral by a little more.

Sternum, labium, and endites dusky orange, legs lighter. Abdomen dark gray. Palpus indistinguishable from that of *directa*.

Female. Length, 2.5 to 3 mm. Cephalothorax orange, the head varying from light dusky to nearly black. Legs yellow or orange, dusky distally. Palpus with the tibia and tarsus dark.

Posterior eyes in a slightly procurved line, the median separated by the radius and from the lateral by a little more. Anterior eyes in a slightly recurved line, the median smaller than the lateral, almost touching, separated from the lateral by the radius. Epigynum indistinguishable from that of *directa*.

Type localities: Mt. Washington, N. H., eastern Massachusetts and New Haven, Conn.

New York: Mt. Whiteface, Aug. 24, 1916, 1 ♀; Freeville, Oct. 12, 1924, 2 ♂, 4 ♀; McLean, May 16, 1925, 8 ♀; May 14, 1919, 2 ♀; May 30, 1921, 3 ♀; May 8, 1919, 1 ♀; June 21, 1924, 2 ♀; Danby, Oct. 17, 1924, 1 ♂; West Barre, Sept. 19, 1925, 1 ♂; Mt. Marcy, Aug. 27, 1930, 1 ♂; Oleott, April 10, 1919, 1 ♀ (Stout and Dietrich); Labrador Pond, June 25, 1922, 1 ♀; Long Pond, Suffolk Co., June 29, 1924, 1 ♀; Pinekill, Sullivan Co., May 11, 1922, 1 ♀; Lockport, Nov. 1918, 1 ♀.

Massachusetts: Mt. Greylock, Oct. 2, 1927, 1 ♀.

Illinois: Brownsville, June 8, 1926, 1 ♀ (Smith).

New Jersey: Ramsey, 1 ♂ 1 ♀ (Emerton det.).

***Cornicularia directa* Cambridge**

(Figures 27-33)

Erigone directa Cambridge. Zool. Soc. London Proc. 1874, p. 439, pl. 55, fig. 9.

Erigone provida Cambridge. Zool. Soc. London Proc. 1875, p. 398, pl. 46, fig. 5.

Cornicularia directa Emerton. Conn. Acad. Sci. Trans. 6: 40, pl. 11, fig. 1. 1882.

Lophocarenum miniatum Banks. Phila. Acad. Nat. Sci. Proc. 1892, p. 36, pl. 4, fig. 4.

Lophocarenum longior Banks. Phila. Acad. Nat. Sci. Proc. 1892, p. 38, pl. 4, fig. 12.

Prosopotheca directa Simon. Hist. Nat. Ar. 1: 626. 1894.

Cornicularia directa Emerton. Common Spiders, p. 152, figs. 374-376. 1902.

Prosopotheca directa Crosby. Phila. Acad. Nat. Sci. Proc. 1905, p. 330.

Cornicularia directa Banks. Phila. Acad. Nat. Sci. Proc. 1916, p. 73.

Male. Length, 2.5 mm. Cephalothorax chestnut brown; viewed from above rather elongate, evenly rounded on the sides with a slight constriction at the cervical groove; viewed from the side rather steeply ascending behind then gradually ascending to the posterior eyes with a slight and broad depression at the cervical groove. Clypeus somewhat retreating, gently concave. The median ocular area occupied by a large horn which is longer and more slender than in *communis* and is clothed the whole length on the upper side with reflexed hairs. The lower horn larger and the cleft between the horns deeper than in *communis*.

Posterior eyes in a procurved line, the median separated by a little less than the diameter and from the lateral by the diameter. Anterior eyes in a straight line, the median smaller than the lateral, separated by less than the radius and from the lateral by the radius.

Sternum and labium chestnut brown, endites yellowish. Legs and palpi yellow. Abdomen dark gray.

Femur of palpus slightly broader distally, gently curved inward; patella nearly straight, thicker distally. Ratio of length of femur to that of patella as 20 to 8. Tibia short, dorsally produced into a long, pointed, incurved apophysis which is separated by a deep evenly rounded notch from the shorter and blunter dorso-lateral apophysis. The lateral margin of the dorsal apophysis excavated, forming a very deep groove. Paracymbium very strongly curved with a small hook at tip. The tail-piece of the embolic division thin, pointed, curved in

an irregular spiral. The terminal part arises directly from the tail-piece with which it forms a right angle. It then makes one small complete flat turn around the end of the bulb.

Female. Length, 2.5 mm. Differs from female of *communis* in having cephalothorax and sternum chestnut brown and the terminal segments of the palpus are not dusky. The epigynum has the middle lobe broad and bounded in front by a curved ridge.

New York: Mt. Mac Intyre, July 1, 1921 (4,000 ft.), 1 ♀; Charley Lake, Hamilton Co., Apr. 27, 1923, 1 ♀; Wilmington Notch, Aug. 29, 1921, 2 ♂; Wells, Apr. 27, 1923, 1 ♀; Paul Smith's, Aug. 30, 1927, 1 ♂ (P. J. Chapman); Meredith, May 19, 1923, 1 ♂; McLean, May 16, 1925, 6 ♂; Apr. 24, 1924, 2 ♂ 1 ♀; Ithaca, April 29, 1921, 2 ♀; Apr. 10, 1926, 1 ♂; Nov. 26, 1915, 1 ♂ 1 ♀ (S. A. Graham); Apr. 9, 1922, 2 ♂; Jan., 1 ♀; Oct. 8, 1922, 1 ♂; Nov. 19, 1925, 1 ♂ 1 ♀; Oct. 1906, 1 ♂; Interlaken, Nov. 25, 1915, 1 ♀ (Ping); Ringwood, Tompkins Co., May 20, 1919, 1 ♂ (H. Dietrich); Shurgers Glen, Tompkins Co., Nov. 24, 1918, 1 ♂; Connecticut Hill, Tompkins Co., Oct. 1924, 1 ♂; Michigan Mills, Lewis Co., Sept. 1, 1926, 2 ♂; Barrington, Oct. 27, 1918, 1 ♂; Penn Yan, May 4, 1922, 2 ♂ 3 ♀; Guyanoga, June 24, 1923, 1 ♀; Lake Keuka, Dec. 1905, 1 ♂ 1 ♀; Eglestons Glen, Yates Co., Sept. 24, 1920, 1 ♂ 1 ♀; Italy Hill, Oct. 27, 1918, 1 ♂; Stow, Sept. 17, 1925, 1 ♂ 1 ♀; Karners, Mar. 24, 1923, 4 ♂ 1 ♀; Oakland Valley, May 26, 1920, 2 ♂; Sterlington, May 18, 1924, 1 ♂ 1 ♀; Pinekill, Sullivan Co., May 11, 1922, 2 ♂ 1 ♀; Savona, Sept. 25, 1920, 2 ♀; Northville, Apr. 21, 1923, 1 ♂; Presho, Oct. 29, 1924, 1 ♀; Mountain Lake, Fulton Co., Apr. 26, 1923, 1 ♂.

Pennsylvania: Potters Mills, Oct. 31, 1924, 2 ♂ 2 ♀.

Massachusetts: Boston 1 ♀.

North Carolina: Mt. Pisgah, Frying Pan Gap, Oct. 13, 1926, 1 ♂; Wayah Bald, Oct. 16, 1926, 1 ♂; Highlands, Apr. 5, 1929, 2 ♂ 1 ♀.

Illinois: Salts, May 19, 1926, 1 ♀ (V. G. Smith).

Maine: Molunkus Pond, Aug. 25, 1925, 1 ♂ 1 ♀.

Tennessee: Mt. Le Conte, Oct. 10, 1926, 1 ♂ 3 ♀.

Cornicularia indirecta Cambridge

(Figures 34-36)

Erigone indirecta Cambridge. Zool. Soc. Lond. Proc. 1874, p. 440, pl. 55, fig. 10.

Cornicularia indirecta Emerton. Conn. Acad. Sci. Trans. 6: 41, pl. 11, fig. 4, 1882.

Erigone indirecta Keyserling. Spinnen. Am. Therid. 2: 146, pl. 16, fig. 213. 1886.

Prosopotheca indirecta Simon. Hist. Nat. Ar. 1: 626. 1894.

Male. Length, 2.5 mm. Cephalothorax reddish orange, the whole head chestnut brown; viewed from above elongate, evenly rounded on the sides to the cervical groove where there is a slight constriction in front of which the outline is again slightly convex; viewed from the side gradually ascending behind with a broad shallow depression at the cervical groove, then nearly level to the posterior eyes. The horn rather blunt and strongly elevated, noticeably roughened at the base above, the lower member closely applied to the upper. Both parts are shorter and thicker than in *directa*.

Posterior eyes in a very strongly procurved line, equal, the median separated by three times the radius and from the lateral by twice the diameter. Anterior eyes in a recurved line, equal, the median separated by the radius and a little farther from the lateral.

Sternum dusky reddish orange, smooth. Chelicerae, endites, and labium chestnut brown. Legs orange, lighter distally. Abdomen yellow. Clypeus retreating, convex below the eyes and concave near the margin.

Palpus practically the same as in *directa*.

Female. Length, 2.5 mm. Similar to male in form and color. Posterior eyes in a very slightly procurved line, nearly equal, the median separated by a little less than the diameter and from the lateral by the diameter. Anterior eyes in a very slightly recurved line, the median a little smaller than the lateral, subcontiguous, separated from the lateral by the radius.

The epigynum transverse; the middle lobe broader than long, the posterior margin straight; the margins of the openings well chitinized.

Type locality: None given, but as Cambridge received his specimens from Emerson, probably New England.

New Hampshire: Tyngsboro, Feb. 1 ♂ 1 ♀ (Emerton).

The specimen in the Cornell University collection which Banks recorded as *indirecta* in Phila. Acad. Nat. Sci. Proc. 1892, p. 34, is *Ceratinopsis laticeps* Em.

***Cornicularia minuta* Emerton**

(Figures 37-42)

Cornicularia minuta Emerton. Conn. Acad. Sci. Trans. 6: 42, pl. 11, fig. 6, 1882.

Erigone paullula, Marx. Catalogue p. 535. 1890.

Prosopotheca minuta, Simon. Hist. Nat. Ar. 1: 626. 1894.

Male. Length, 1.1 mm. Cephalothorax dusky yellow, darker at margin; head the same color. Cephalothorax viewed from above rather broad, evenly rounded on the sides to the cervical groove where there is no constriction, then very slightly narrowed towards the front, broadly rounded across the front; viewed from the side rather steeply ascending behind, then level to the posterior eyes. Clypeus almost vertical, slightly concave below the eyes.

Posterior eyes in a slightly procurved line, the median separated by a little more than the diameter and from the lateral by the radius. Anterior eyes in a straight line, the median smaller than the lateral, subcontiguous, separated from the lateral by the diameter. The horn is single and consists of a low hump shallowly grooved above.

Sternum light orange yellow, smooth and shining. Endites yellow, lighter distally. Legs orange yellow. Abdomen dark gray.

Femur of palpus straight, the same thickness throughout; patella moderately thickened distally; tibia short and armed dorsally with a very long, pointed process which curves laterally over the base of the cymbium, the mesal side angulate at the middle; on the lateral side of this process there is a very deep, rounded notch which is bounded laterally by a triangular lobe, the upper edge of which is straight and armed with very dense stiff black hairs. The paracymbium is strongly curved and with

a small hook at the tip. Tail-piece of the embolic division thin and pointed, making a sharp angle with the middle part, the terminal part, or embolus proper, arises as a rather broad flat rod, but rapidly becomes more slender and makes one flat turn around the end of the bulb.

Type localities: Mt. Carmel, Hamden, Conn., and Mt. Washington, N. H.

New York: High Falls, Essex Co., Aug. 26, 1921, 2 ♂; Lake Bluff, Sept. 19, 1920, 1 ♂; Riverhead, April 11, 1923, 1 ♂; Baiting Hollow, April 8, 1924, 1 ♂; Penn Yan, May 30, 1922, 1 ♂; Amagansett, May 24, 1924, 1 ♂.

New Jersey: Montclair, April 5, 1930, 1 ♂ (Hayden).

Minnesota: Lake Minnetonka, Sept. 1925, 1 ♂ 2 ♀ (Fletcher).

Missouri: Columbia, Mar. 1906, 1 ♂ 1 ♀.

Cornicularia pallida Emerton

(Figures 43-48)

Cornicularia pallida Emerton. Conn. Acad. Sci. Trans. 6: 42, pl. 11, fig. 7. 1882.

Erigone humiliceps Keyserling. Spinn. Am. Therid. 2: 148, pl. 16, fig. 214. 1886.

Prosopotheca pallida Simon. Hist. Nat. Ar. 1: 626. 1894.

Male. Length, 2.6 mm. Cephalothorax dusky reddish orange, darker on the head; viewed from above evenly rounded on the sides, slightly constricted at the cervical groove and then gradually tapering towards the front; viewed from the side, evenly arched over the back to the posterior eyes with a slight depression at the cervical groove. Clypeus almost straight and slightly retreating. Horn double, the lower element very small and not shown in Emerton's figure. Horn viewed from the side appears as a bluntly triangular hump clothed above on the sides with stiff recurved hairs. Posterior eyes in a strongly procurved line, equal, the median separated by a little less than the diameter and from the lateral by the diameter. Anterior eyes in a straight line, equal, the median subcontiguous and separated from the lateral by the radius.

Sternum bright orange, slightly roughened. Labium and endites brownish yellow. Legs yellow. Abdomen yellowish white.

Femur of palpus nearly straight; patella moderately long, slightly widened distally. Tibia very similar to that of *directa* as is also the palpal organ.

Female. Length, 2 mm. Similar to male in form and color. The epigynum similar to *communis* and *directa* but has the middle lobe broader.

Type locality: New Haven, Conn.

New York: Auger Pond, Essex Co., Nov. 17, 1916, 1 ♂ (Emerton det.); Ithaca, Nov., 2 ♂; Penn Yan, Nov. 10, 1928, 1 ♂; Staten Island, Feb. 22, 1913, 2 ♂ 1 ♀, A. M. N. H.; Northville, Apr. 27, 1923, 1 ♀.

Rhode Island: Kingston, June 1905, 1 ♀ (Barlow).

District of Columbia: Washington, April 2 ♂ 2 ♀ (Fox), taken in sifting, Sept.–Nov. 1 ♂ 1 ♀ (Fox).

North Carolina: Blowing Rock, Oct. 10, 1923, 3 ♀; Raleigh, Oct. 26, 1923, 1 ♂.

Kentucky: Quicksand, June 25, 1925, 2 ♀.

Missouri: Mansfield, Oct. 1905. 1 ♂.

***Cornicularia placida* Banks**

Cornicularia placida Banks. Phila. Acad. Nat. Sci. Proc. 1892, p. 35, pl. 5, fig. 36.

Cornicularia placida Crosby. Same. 1905, p. 308.

Cornicularia placida Banks. Same. 1916, p. 72, pl. 11, fig. 19.

Described from female only. Banks states that this is probably the female of some described species. He is doubtless correct.

***Cornicularia tibialis* Emerton**

(Figures 49–51)

Cornicularia tibialis Emerton. Conn. Acad. Sci. Trans. 6: 41, pl. 11, fig. 2, 1882.

Prosopotheca tibialis Simon. Hist. Nat. Ar. 1: 626. 1894.

Male. Length, 2 mm. Cephalothorax chestnut brown; viewed from above evenly rounded on the sides to the cervical groove where there is a very slight constriction, broadly rounded across the front; viewed from the side ascending gradually in a straight line, then rounding to the posterior eyes with a slight depression at the cervical groove. Clypeus concave and slightly

retreating. The horn arising from the median ocular area is higher and more slender than in *tumida* and projects farther above the head; it is double and clothed on the top with short, stiff, recurved hairs.

Posterior eyes in a very slightly procurved line, the median slightly smaller than the lateral, separated by the radius and a little farther from the lateral. Anterior eyes in a straight line, median smaller than the lateral, nearly touching, a little farther from the lateral. The anterior median eyes dark, the lateral light.

Sternum dusky orange, labium and endites the same but lighter distally. Legs orange. Abdomen greenish gray.

Femur of palpus moderately long and slender. Patella short and slightly widened distally. Ratio of length of femur to that of patella as 14 to 6. The tibia of the same general form as in *tumida* but dorsal apophysis when viewed from the lateral side is more strongly bent at the middle and clothed at the bend with stronger granulations. The bulb itself strongly resembles that of *tumida*.

In the naturally expanded bulb, the embolus lies in the lateral concavity of the tibial apophysis, next to the dentate margin. The paracymbium apparently lies against the base of the tail-piece of the embolic division, holding the tip of the embolus in place.

Type locality: Mt. Tom, Holyoke, Mass.

New Jersey: Lakehurst, May 1, 1912, 1 ♂ (Emerton det.).

District of Columbia: Washington, Mar. 12, 1925, 1 ♂ (H. C. Barber).

Cornicularia tumida n. sp.

(Figures 52-56)

Male. Length, 1.4 mm. Cephalothorax dusky orange yellow; viewed from above evenly rounded on the sides to the cervical groove and then slightly narrowing to the front, the horn slightly projecting beyond the clypeus; viewed from the side steeply ascending behind and then rounded over to the eyes. A short, blunt, flat-tipped double horn arises from the median ocular area, the groove separating the two parts of the horn shallow.

Top of horn clothed with short recurved hairs. Clypeus concave and slightly retreating.

Posterior eyes in a slightly procurved line, the median separated by the radius and a little farther from the lateral. Anterior eyes in a very slightly procurved line, subcontiguous, the median very little smaller than the lateral. All the eyes light colored.

Sternum orange yellow, sparsely clothed with dark hairs, labium and endites lighter. Legs yellowish tinged with orange, abdomen pale, dirty white.

Femur of palpus moderately slender. Patella short, widened distally. Ratio of length of femur to that of patella as 12 to 5. Tibia short on the ventral side but dorsally prolonged into a long, pointed apophysis which is deeply grooved within and has the lateral margin armed with a series of small, sharp, black teeth. At the base of this process on the mesal side there is a blunt, triangular tooth. Paracymbium rather slender, very strongly curved with a short hook at tip. Tegulum is strongly developed and covers a large part of the face of the bulb; the tail-piece of the embolic division thin, and spirally curved, merging without a break into the embolus proper which is spirally curved in one compact turn, the tip lying near the long, slender, pointed, median apophysis.

The species can be distinguished from *tibialis* by its smaller size, lighter color of thorax and abdomen, by having all the eyes light colored, while in *tibialis* the anterior median are dark, and by the form of the tibial apophysis of the male palpus. Closely resembles *pallida* in the shape of the cephalic horn and in color, except that the head is not noticeably darker in *tumida* and *pallida* lacks the denticulate lateral margin of the tibial apophysis.

Holotype male, Little Pond, Orange Co., New York, May 25, 1920, 1 ♂. Sifting sphagnum.

PARACORNICULARIA new genus

Type: *P. bicapillata*, n. sp.

Related to *Cornicularia* and *Ceratinopsis* in the structure of the palpal organ. The form of the embolic division seems to approach more closely to *Ceratinopsis*. The patella of the male palpus is greatly elongate. The cephalic horn of *Cornicularia* is replaced by a slight protuberance from which arise two stiff forward directed hairs.

Paracornicularia bicapillata new species

(Figures 57-62)

Male. Length, 1.1 mm. Cephalothorax yellowish, slightly dusky especially along the margin; viewed from above rather long broadly rounded on the sides posteriorly, slightly constricted at the cervical groove, broad and squarely truncate in front, rounded on the corners; viewed from the side, steeply ascending behind, flat on top to just above the anterior median eyes where it turns squarely downward. Clypeus gently concave and slightly protruding. Just above the anterior median eyes there is a small tubercle bearing two very long stiff straight hairs that project straight in front. A median row of three black hairs curved forward on the head.

Posterior eyes in a slightly procurved line, equal, median separated by a little more than the diameter and a little closer to the lateral. Anterior eyes in a procurved line, the median smaller than the lateral, subcontiguous, and separated from the lateral by about the diameter. Clypeus a little wider than the median ocular area.

Sternum yellowish, slightly dusky, strongly convex, produced in a truncated point between the hind coxæ which are separated by the diameter. Labium and endites yellowish tinged with orange. Chelicera dusky yellow with a few small black tubercles on the face. Legs and palpi pale yellowish. Anterior tibia armed dorsally with a regular series of curved stiff hairs. Abdomen light reddish over yellow.

Femur of palpus long and slender, slightly curved. Patella stout, widened distally. Ratio of length of femur to that of patella as 4 to 3. Tibia slender at base, widened distally; on the dorso-lateral angle there is a broad rounded notch; the dorsal margin evenly rounded, on the mesal margin there is a basally broad, apically narrow and strongly curved apophysis, the tip directed dorsally. The paracymbium is rather slender at the base and very strongly curved and hooked. The bezel broad, pointed toward the tip of the palpus. Tail-piece of the embolic division thin and flat, widened at tip and extending over the edge of the cymbium. The terminal part of the embolus spirally curved in a semi-circle, rather broad and bluntly pointed at tip. The ejaculatory duct is on the outside of the curve but opens at the middle of the tip.

Female. Length, 1.3 mm. Another female is 1.6 mm. long. Similar to male in form and color. Viewed from the side the head is not so square in front, the clypeus slightly more protruding. The series of curved hairs on the anterior tibia not present.

Epigynum has the middle lobe broadly and evenly rounded behind. The ducts of the spermathecae show distally as widely separated oval dark spots divergent behind.

Holotype male, allotype female and 1 female paratype, Columbia, Missouri, November.

Mississippi: Starkville, Dec. 24, 1924, 1 ♂ (J. W. Bailey).

TIGELLINUS Simon

Ar. Fr. 5: 838. 1884.

Type: *Phalops furcillatus* Menge.

This genus is related to *Cornicularia* in the structure of the palpal organ but the posterior median eyes of the male are borne on a separate lobe.

Tigellinus tricornis Emerton

(Figures 63-66)

Cornicularia tricornis Emerton. Conn. Acad. Sci. Trans. 6: 43, pl. 11, fig. 8, 1882.

Tigellinus tricornis Simon. Hist. Nat. Ar. 1: 626. 1894.

Tigellinus tricornis Crosby. Phila. Acad. Nat. Sci. Proc. 1905, p. 308.

Male. Length, 1.9 mm. Cephalothorax dark brown, not much darker toward the head; viewed from above elongate oval, the margin slightly crenulate at the radiating lines (possibly due to the age of the specimen), slightly constricted at the cervical groove and broadly rounded across the front; viewed from the side rather steeply ascending behind, then nearly straight to the cervical groove and rounded over the head to the base of the horn. According to Emerton the posterior median eyes are borne on the base of the dorsal horn which is branched in front and separated from the rest of the head and the lower horn by a very deep fissure which reaches back under the posterior median eyes. The lower horn is short, bluntly rounded and clothed at the tip with a cluster of short recurved hairs. Clypeus almost vertical, slightly concave below the eyes.

Posterior eyes according to Emerton's figure in a slightly recurved line. In the specimen before us these eyes have been injured so that their relation to the lateral cannot be determined. Anterior eyes in a slightly recurved line, equal, the median separated by less than the radius and from the lateral by about the radius. Sternum, labium, and endites dark brownish. Legs orange. Abdomen dark gray or black.

Femur of palpus cylindrical, bent strongly inward at base. Patella short and slightly thickened distally. Ratio of length of femur to that of patella as 17 to 7. Tibia short below but

above produced into a long, broad, process which at the base, mesally, is widened into a triangular tooth, laterally there is a broad rounded emargination near the base beyond which there is a broad triangular tooth, tip thin and rounded. Paracymbium rather small, strongly curved. Tail-piece of the embolic division slender and extending to the edge of the tegulum. Terminal part of the embolic division consists of a basally stout black style curved in a circle forming one turn around the tip of the bulb.

Type locality: Mt. Washington, N. H.

New Hampshire: Mt. Washington, June, 1877, 1 ♂ (Emerton).

This is one of the specimens from which the original description was drawn.

WALCKENÆRA Blackwall

London and Edinb. Phil. Mag. (Ser. 3) 3: 106, 1833.

Type: *W. acuminata* Blackwall.

This genus is represented in the United States by only one species, *vigilax* Blackwall, which also occurs in Europe. *W. vigilax* differs from the type of the genus in having the head of the male strictly normal but is closely related to it in the form of the palpal organ. We follow de Lessert, Bösenberg, and Chyzer and Kulezynski in placing it in *Walckenaera*. For comparison we give four views of the palpus of *W. acuminata* (Figures 67-70).

Walckenaera vigilax Blackwall

(Figures 71-75)

Neriene vigilax Blackwall. Ann. Mag. Nat. Hist. (Ser. 2) 11: 24, 120. 1853.

Neriene vigilax Blackwall. Spid. Gt. Brit. p. 277, pl. 19, fig. 191. 1864.

Erigone vigilax Thorell. Rem. Syn. Europ. Spid. p. 446. 1873.

Neriene vigilax Cambridge. Spiders of Dorset p. 113. 1879-81.

Spiropalpus spiralis Emerton. Conn. Acad. Sci. Trans. 6: 39, pl. 10, fig. 6. 1882.

Cornicularia vigilax Simon. Ar. Fr. 5: 848, figs. 783, 784. 1884.

Lophomma vigilax Dahl. Schriften naturw. Ver. f. Schleswig-Holstein, 6: 98. 1886.

Cornicularia vigilax Simon. Hist. Nat. Ar. 1: 627. 1894.

Walckenæra vigilax Chyzer and Kuleczynski. *Araneæ Hungariæ* 2: 146, pl. 5, fig. 30. 1894.

Walckenæra vigilax Bösenberg. *Spinnen Deutschlands*, p. 144, pl. 13, fig. 191. 1903.

Prosopotheca spiralis Crosby. *Phila. Acad. Nat. Sci. Proc.* 1905, p. 332.

Cornicularia vigilax Falconer. *Naturalist*, p. 332. 1909.

Walckenæra (Cornicularia) vigilax de Lessert. *Cat. Ar. Suisse* p. 181. 1910.

Cornicularia vigilax Simon. *Ar. Fr.* 6: 418. 1826.

Spiropalpus spiralis Simon. *Ar. Fr.* 6: 509. 1826.

Male. Length, 2 mm. Cephalothorax dusky orange with darker radiating lines; viewed from above rounded on the sides with scarcely any depression at the cervical groove, broadly rounded across the front; viewed from the side ascending rather steeply in a straight line to the cervical groove where there is a very shallow depression, then ascending at the same angle to the top of the head which is higher than the posterior eyes, rounded over the top of the head.

Posterior eyes in a slightly procurved line, the median slightly larger than the lateral, all eyes equidistant and separated by a little less than the diameter. Anterior eyes in a straight line, the median smaller than the lateral, separated by a radius and from the lateral by a little more.

Sternum dark gray over orange, endites and labium pale yellowish. Legs and palpi pale orange yellow. Abdomen very dark gray, almost black.

Femur of palpus cylindrical, slightly curved inward. Patella as thick as femur, curved downward. Ratio of length of femur to that of patella as 15 to 7. Tibia short and provided with a long, dorsal, laterally curved apophysis which is narrow basally, widened distally and deeply grooved on the lateral side. The tip is thin and lies close to cymbium. Between the base of this apophysis and the angulate margin of the tibia there is a deep rounded emargination. Paracymbium rather small, sharply hooked at tip. Tail-piece of the embolic division rather small, broad at base and slender at tip, nearly straight. Terminal part of embolic division consists of a very long, slender, black style which is coiled twice around the tip of the bulb.

Type locality: Denbigshire, Wales.

New Hampshire: Hollis, Aug. 1888 3 ♂ (Fox).

New York: Louck's Pond, Steuben Co., July 5, 1924, 1 ♂; Ithaca, Aug. 1 ♂; Aug. 4, 1916, 1 ♂; Oct. 1 ♂; Sept. 18, 1 ♂; Nov. 2 ♂; Aug. 1903, 1 ♂; Olcott, Feb. 1925, 2 ♂ 1 ♀ (Henry Dietrich); McLean, May 30, 1921, 1 ♂; June 21, 1924, 2 ♂; Prattsburg, July 16, 1926, 1 ♂; Cinnamon Lake, Schuyler Co., June 5, 1925, 1 ♂; July 12, 1924, 1 ♂.

Georgia: Billy's Island, Okefinokee Swamp, June 1912, 2 ♂; Mixon's Hammock, Okefinokee Swamp, June 16, 1912, 1 ♂.

Illinois: Salts, July 3, 1926, 1 ♂ (Smith).

Missouri: Columbia, Sept. 20, 1925, 1 ♂; June 1905, 3 ♂; Hunter, Aug. 1905, 1 ♂.

District of Columbia: Washington, July 12, 1925, 1 ♂ (H. S. Barber); May 1 ♂ (Fox).

Virginia: East Falls Church, June 30, 1926, 1 ♂.

Ohio: Gambier, June 15, 1905, 1 ♂ (Nelson).

France: E. Simon's collection 1 ♂.

EPICERATICELUS new genus

Type: *E. fluvialis* n. sp.

This genus is related to *Ceraticelus* and *Ceratinella* in the form of the tail-piece of the embolic division of the genital bulb but differs from it in the form of the embolus in which there is no break before the tip. There are no hardened sclerites on the abdomen as in those genera. It is related to *Cornicularia* but the tibial armature is not of the type found in that genus.

Epiceraticelus fluvialis new species

(Figures 76-79)

Male. Length, 1.1 mm. Cephalothorax dull orange yellow with a light spot in front of the cervical groove; viewed from above rounded on the sides, no constriction at the cervical groove, broadly rounded across the front; viewed from the side steeply ascending to the cervical groove and then evenly rounded to the eyes. Clypeus slightly concave below the eyes and then slants forward.

Posterior eyes in a straight line, equal, the median separated a little less than the diameter and from the lateral by the radius. Anterior eyes in a slightly recurved line, the median much smaller than the lateral, sub-contiguous and separated from the lateral by about the radius.

Sternum broad and convex, yellow, produced in a truncate point between the hind coxæ. Labium and endites dull orange. Legs orange yellow. Abdomen dull grayish yellow.

Femur of palpus slender, thicker distally and slightly curved inward. Patella short and rather thick. Ratio of length of femur to that of patella as 11 to 5. Tibia diagonally truncate, very short beneath and dorsally produced into a long, thin process which is hollowed out beneath to form a groove. At the base of the apophysis, on the lateral side, there is a distinct rounded notch. Paracymbium rather broad, flat and strongly curved. Bezel high, the upper edge nearly straight. Tail-piece of the embolic division long, narrow, and slightly curved toward tip, reaching to the edge of the cymbium, much as in *Ceraticelus*. The terminal part of the embolic division consists of a rather stout, black style which makes one turn around the end of the bulb. The coil is not circular but triangular with rounded corners. The style does not lie flat but undulates.

Female. Length, 1.2 mm. Similar but the abdomen is lighter in color. The epigynum has a middle lobe which is straight behind and which is overlapped in front by a bluntly triangular lobe.

Holotype male, allotype female, Riverhead, N. Y.

New York: Riverhead, April 11, 1923, 5 ♂ 11 ♀; May 31, 1923, 1 ♂ 1 ♀; Pomona, Rockland Co., April 12, 1923, 1 ♀.

PELECOPSIS Simon

Hist. Nat. Ar. Ed. I, p. 196. 1864.

Type. *Micryphantes inaequalis* C. L. Koch, 1841 (*Theridion elongatum* Wider, 1834).

Simon established *Pelecopsis* as a sub-genus of *Micryphantus* Koch, placing only one species under it. In his later work Simon ignored *Pelecopsis* and placed its type and other related species in *Lophocarenum* Menge (1868). Smith, F. P. (Jour. Quekett Microscopical Club Ser. 2, Vol. 9, No. 58, Apr. 1906) seems to have been the first to revive Simon's name for the group.

In *Pelecopsis*, as here used, the abdomen, at least in the male, bears a hardened dorsal plate, the head of the male is strongly elevated into a cephalic lobe bearing the posterior median eyes, and cephalic pits are present. The embolus is of the spiral type with a very long tail-piece. In the structure of the embolic division *moestum* Banks differs somewhat from the typical forms but it seems best, for the present at least, to leave it here.

The generic position of *Lophocarenum rugosum* Emerton is uncertain but it is not related to *Pelecopsis*. As pointed out by Emerton it is closely related to *Lophocarenum Latum* Em. and *L. cretatum* Em. but lacks the cephalic pits.

Lophocarenum frontalis Banks is excluded from this genus because the cephalic lobe bears all the eyes.

***Pelecopsis sculptum* Emerton**

(Figures 80-85)

Lophocarenum sculptum Emerton. Can. Ent. 49: 261, fig. 12, 1917.

Male. Length, 2 mm. Cephalothorax brown with darker radiating lines. Viewed from the side rounded over the back to the base of the median lobe of the head which is very high. The back of the lobe ascends at a steep angle and it is rounded over the top and slightly retreating in front to a point just above the lateral eyes where the outline slopes forward gradually to the anterior median eyes. Clypeus convex. The cephalic pits are very large and deep and lie close above and behind the posterior lateral eyes. The posterior median eyes are borne on the front of the top of the median lobe which has a deep groove over the top so that each eye is on a separate division of the lobe.

Posterior eyes in a strongly procurved line, the median widely separated and more remote from the lateral than from each other. Anterior eyes in a gently procurved line, the median nearer to each other than to the lateral. Just above the anterior median eyes there is a group of short stiff hairs parted in the middle.

Sternum blackish brown, darker on the edge, the margin scalloped opposite the coxae. Hind coxae separated by a little less than the length. Labium same color as sternum. Endites light brownish yellow suffused with gray. Legs and palpi orange yellow.

Dorsum of abdomen covered with a dark brown sclerite which is densely and coarsely sculptured. Epigastric sclerite not well developed consisting of two lunate plates connected by three transverse bands. Inframammillary sclerite well developed but of irregularly outline anteriorly. Soft parts of abdomen dark gray.

Femur of palpus rather stout, slightly thicker distally, patella straight and rather stout. Ratio of length of femur to that of patella as 19 to 9.

Tibia armed with a broad dorsal apophysis which is obliquely truncate at apex and with a deep rounded emargination laterally. Tail-piece of the embolic division short and straight, the tip lying on the edge of the tegulum, which on this side is black. The embolus is black, stout at base, narrowing gradually to the tip and curved in an open spiral of one turn. The tip lies near the tip of the cymbium.

Female. Length, 2.5 mm. Similar to male in coloration. Cephalothorax viewed from the side rather steeply ascending behind with a broad shallow depression at the cervical groove, rounded over the head with the median ocular area slanting at 45 degrees. Clypeus slightly convex, nearly vertical.

Posterior eyes in a procurved line, about equidistant. Anterior eyes in a straight line, the median close together but well separated from the lateral. Dorsal abdominal sclerite smaller than in male, extending back only about two-thirds the length of the abdomen. Epigastric sclerite only very slightly developed. Inframammillary sclerite a narrow yellow transverse plate in front of spinnerets. Epigynum, figure 85.

Type locality: Metlakatla, B. C.

Redescribed from the types, 1 ♂ and 1 ♀, Metlakatla B. C.

Washington: Friday Harbor, June-July, 1928, 5 ♂ 6 ♀ (Shackelford); Friday Harbor, Aug. 5, 1926; 1 ♀ (Worley).

***Pelecopsis excavatum* Emerton**

(Figures 86-91)

Lophocarenum excavatum Emerton. Conn. Acad. Sci. Trans. 16: 391, pl. 2, fig. 3, 1911.

Lophocarenum minakianum Emerton. Can. Ent. 51: 105, pl. 7, fig. 1. 1919.

Male. Length, 1.7 mm. Cephalothorax reddish orange with the cephalic lobe yellow orange, viewed from above rather broad, rounded on the sides, the sides convergent towards the front, rounded truncate in front; viewed from the side, the posterior declivity ascending in a straight line, then slightly hollowed back of the base of the very large cephalic lobe. The latter high

and bearing the posterior median eyes on the top; viewed from the side, nearly perpendicular and gently rounded behind, rounded over the top and down in front to the transverse groove. This groove is deep and at the sides reaches the edge of the very large cephalic pits. Below the groove the head projects forward some distance in front of the cephalic lobe. Clypeus perpendicular and slightly concave.

Posterior eyes in a procurved line; the median separated by three times the diameter and borne on the top of the cephalic lobe in front of its middle, widely separated from the lateral. Anterior eyes in a procurved line, the median much smaller than the lateral, separated by about the radius and from the lateral by more than the diameter. Chelicerae orange yellow, rather stout, vertical; the claw with a single curve.

Sternum broad with scalloped margin, convex, smooth, shining, sparsely and shallowly punctate, reddish orange, blackish at margin, produced between the hind coxæ in an inflexed and truncate point. Posterior coxæ separated by a little less than the length. Labium blackish. Endites yellow orange like the legs and palpi.

Abdomen almost completely covered with a strongly chitinized, dark reddish orange sclerite, shallowly but rather densely punctate. Epigastric sclerite strongly developed, the posterior angles rounded and narrowly connected back of the furrow. In front of the opening of the reproductive organs there is semi-circular area of soft integument containing a small free transverse, lenticular sclerite. Circummamillary sclerite widest below where it extends far in front of the spiracular furrow. Soft parts of abdomen grayish, thickly studded with minute brownish punctures each bearing a short pale hair.

Femur and patella of palpus of nearly equal length, nearly straight and slightly compressed. Tibia short; the dorsal apophysis triangular, acute, with the tip slightly incurved, the lateral margin minutely granulate. Paracymbium small, slender and curved in a semi-circle. Bezel strongly developed; the opposite edge of the tegulum strongly chitinized and appearing as a conspicuous curved plate just inside of which lies the tail-piece of the embolic division. The tail-piece is elongate, gently

curved and the tip extends beyond the edge of the tegulum. The apical part is black and curved in a short spiral of one turn. The ejaculatory duct opens just before the tip. The median apophysis appears as a conspicuous, black, rather slender process lying laterally from the tip of the embolus.

Female. Length, 1.9 mm. Similar to the male in color. The head is rather high but not elevated as in the male and the abdomen does not have a dorsal sclerite. The cephalothorax is dark reddish brown, lighter on the head, marked with rows of punctures along the radiating furrows and a strongly curved row extending backward from the outside of each posterior median eye.

The posterior eyes in a procurved line, nearly equal and equidistant, the median separated by the diameter. Anterior eyes in a procurved line, the median much smaller than the lateral, separated by less than the radius and from the lateral by less than the diameter.

The epigynum is a nearly circular convex plate near the posterior edge of which there are indications of two oval openings.

Type locality: Ipswich, Mass.

New York: Summit of Mt. Whiteface, Aug. 25, 1922, 5 ♂ 1 ♀. Sifting moss.

Massachusetts: Ipswich, Aug. 18, 1908, 1 ♂ 1 ♀ (Emerton).

Paratypes. Under straw on the edge of the salt marsh.

Ontario: Minaki. (Emerton.) Types of *L. minakianum* Em.

This species is very closely related to *Lophocarenum parallelum* Wider of Europe.

***Pelecopsis moestum* Banks**

(Figures 92-97)

Ceratinella moesta Banks. Phila. Acad. Nat. Sci. Proc. 1892, p. 32, pl. 2, fig. 58, pl. 5, fig. 58.

Lophocarenum moestum Crosby. Phila. Acad. Nat. Sci. Proc. 1905, p. 301.

Lophocarenum coriaceum Emerton. Conn. Acad. Sci. Trans. 18: 215, pl. 1, fig. 10. 1913.

Male. Length, 1.6 mm. Cephalothorax dark reddish brown, lighter on the cephalic lobe, the surface rugose especially on the

side; viewed from above rather broad, evenly rounded on the sides to the cervical groove where there is a slight constriction, from there the sides are gently curved but strongly converging with the front narrow, rounded; viewed from the side rather strongly arched over the back to the cervical groove. The cephalic lobe narrow, very high in profile, evenly rounded behind to the posterior median eyes, in front convex, nearly vertical. The cephalic pits, small, round, and situated in distinct grooves. Clypeus wide and strongly convex.

Posterior eyes in a straight line, the median on the front of the top of the cephalic lobe, separated by two thirds the diameter and from the lateral eyes by more than twice the diameter. Anterior eyes in a very slightly procurved line, the median smaller than the lateral, separated by less than the radius and from the lateral by the diameter.

Sternum convex, dark orange red, rugose, the ridges blackish. Coxal cavities closed by lateral prolongations of the sternum. Endites lighter and smoother. Posterior coxæ separated by the length.

Abdomen viewed from above broadly oval, somewhat pointed behind; viewed from the side high in front, perfectly flat above as if cut off, convex below. Ventral sclerite dark reddish orange, finely rugose, very strongly developed into one piece covering the whole under surface and extending up in front above the pedicel, and also on the sides so that its edge is visible from above. Behind it surrounds the spinnerets. The soft integument of the abdomen is confined to the upper surface occupying an oval area bounded by the edge of the ventral sclerite and bearing in front the broadly oval, dull reddish dorsal sclerite which is finely rugulose. Legs reddish orange yellow, patellæ pale.

Femur of palpus rather stout, slightly curved inward. Patella moderately arched above. Ratio of length of femur to that of patella as 15 to 7. Tibia longer than patella, gradually widened distally, the dorsal margin produced over the base of the cymbium in a broad evenly rounded lobe with a rounded notch on the outer angle. Paracymbium broad at base, short, strongly hooked at tip. Bezel wide and high, the edge bent around the

embolus. The embolic division consists of a flat, thin, curved tail-piece which extends over the edge of the tegulum. The embolus is very short and ends in two points; the first is rather blunt and bears the opening of the ejaculatory duct, the other is curved and ends in a sharp point. The median apophysis appears as a thin round-pointed process with a sharp tooth on the outer side some distance from the tip.

Female. Length, 1.6 mm. Similar to the male in coloration. Cephalothorax viewed from the side rounded over the thorax with a distinct depression at the cervical groove; head rather high, rounded over the back to the posterior eyes.

Posterior eyes in a gently procurved line, the median less than the diameter apart, a little farther from the lateral. Anterior eyes in a slightly procurved line, the median smaller than the lateral, separated by much less than the radius and from the lateral by the radius. Clypeus wide, slightly concave above, somewhat protruding. The last two segments of the palpi long and somewhat enlarged.

Hard parts of abdomen reddish brown, soft parts greenish. Epigastric sclerite large and strongly chitinized, rugose, extending about half way from the epigynum to the spinnerets; it surrounds the pedicel and extends up on the front of the abdomen so as to be visible from above. In front of the epigynum there is a crescentic area of soft integument and behind it there is a smaller lunate greenish area containing the two muscle impressions. Inframamillary sclerite broad, extending around the spinnerets as a narrow ring above. Dorsal sclerite distinct, rounded on the sides, truncate in front and behind, much narrower than abdomen and extending only about half way back.

Epigynum a transverse oval plate. The middle lobe broad and short, not raised above the general level of the plate.

Type locality: Ithaca, N. Y.

New York: Ithaca, South Hill beyond [south of] Buttermilk Creek, Nov. 1 ♂ (Banks); Pine Island, Orange Co., May 19, 1920. 1 ♀

Connecticut: Danbury, July 19, 1912. ♂ ♀ (Emerton). Types of *L. coriaceum*.

Ohio: Rockridge, May 17, 1925. 3 ♂ (Barrows).

North Carolina: Black Mts., N. Fork Swannanoa River, ♂ ♀ (Banks).

Kentucky: Quicksand, June 25, 1925. 1 ♀.

Mississippi: Richton, Dec. 8, 1930. 1 ♂ (H. Dietrich); Mar. 23, 1931. 1 ♀; Lucedale, Mar. 1931, 1 ♂, 2 ♀ (Dietrich).

PLATE XXV

1. *Cornicularia auranticeps*, ♂ cephalothorax, dorsal view.
2. *Cornicularia auranticeps*, ♂ cephalothorax, lateral view.
3. *Cornicularia auranticeps*, ♂ tibia, dorsal view.
4. *Cornicularia auranticeps*, ♂ right palpus, lateral view.
5. *Cornicularia auranticeps*, ♀ epigynum.
6. *Cornicularia breviararia*, ♂ cephalothorax, dorsal view.
7. *Cornicularia breviararia*, ♂ cephalothorax, lateral view.
8. *Cornicularia brevicula*, ♂ cephalothorax, dorsal view.
9. *Cornicularia brevicula*, ♂ cephalothorax, lateral view.
10. *Cornicularia brevicula*, ♂ left palpus, dorsal view.
11. *Cornicularia brevicula*, ♂ left palpus, lateral view.

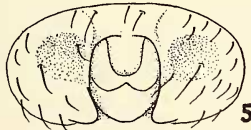
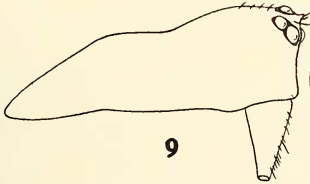
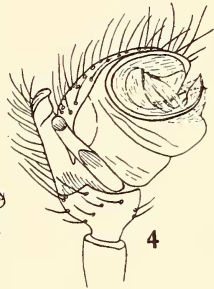
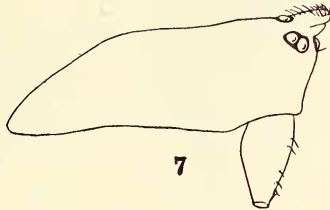
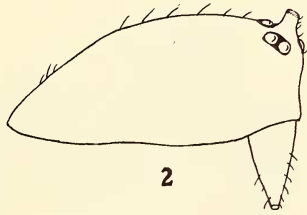
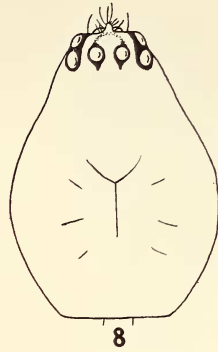
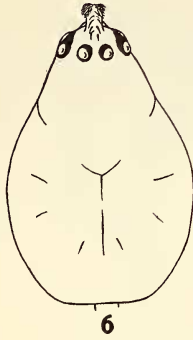
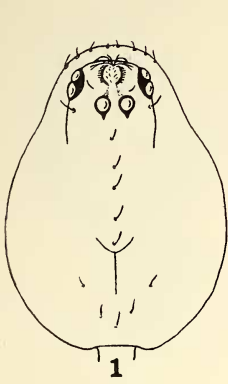
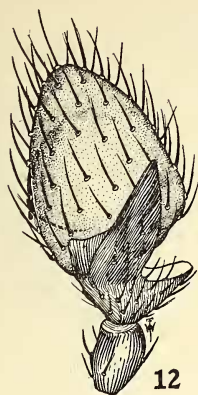
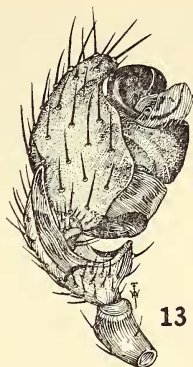


PLATE XXVI

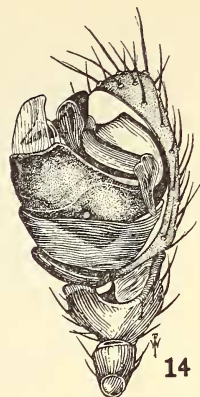
12. *Cornicularia brevicornis*, ♂ right palpus, dorsal view.
13. *Cornicularia brevicornis*, ♂ right palpus, lateral view.
14. *Cornicularia brevicornis*, ♂ right palpus, meso-ventral view.
15. *Cornicularia brevicornis*, ♂ cephalothorax, dorsal view.
16. *Cornicularia brevicornis*, ♂ cephalothorax, lateral view.
17. *Cornicularia brevicornis*, ♀ epigynum.
18. *Cornicularia clavicornis*, ♂ right palpus, dorsal view.
19. *Cornicularia clavicornis*, ♂ right palpus, mesal view.
20. *Cornicularia clavicornis*, ♂ right palpus, lateral view.
21. *Cornicularia clavicornis*, ♂ cephalothorax, dorsal view.
22. *Cornicularia clavicornis*, ♂ cephalothorax, lateral view.
23. *Cornicularia clavicornis*, ♀ epigynum.



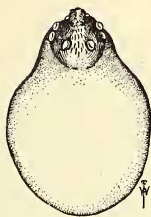
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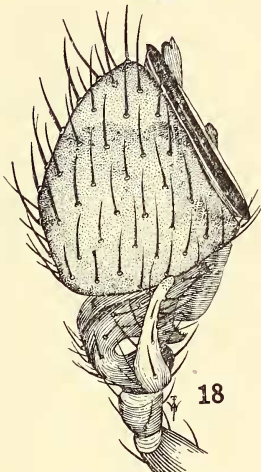
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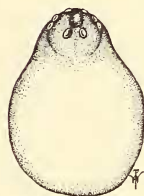
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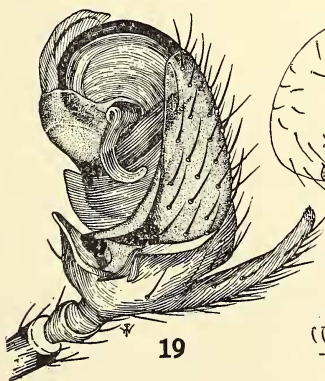
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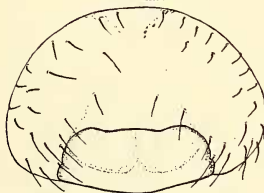
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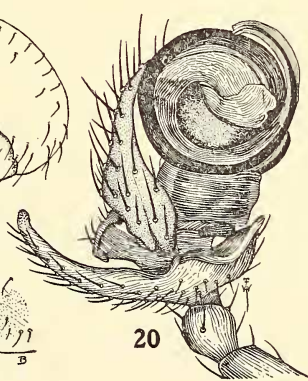
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PLATE XXVII

24. *Cornicularia communis*, ♂ cephalothorax, dorsal view.
25. *Cornicularia communis*, ♂ cephalothorax, lateral view.
26. *Cornicularia communis*, ♀ epigynum.
27. *Cornicularia directa*, ♂ cephalothorax, dorsal view.
28. *Cornicularia directa*, ♂ cephalothorax, lateral view.
29. *Cornicularia directa*, ♂ right palpus, lateral view.
30. *Cornicularia directa*, ♂ right palpus, mesal view.
31. *Cornicularia directa*, ♂ right palpus, ventral view.
32. *Cornicularia directa*, ♂ right palpus, dorsal view.
33. *Cornicularia directa*, ♀ epigynum.
34. *Cornicularia indirecta*, ♂ cephalothorax, dorsal view.
35. *Cornicularia indirecta*, ♂ cephalothorax, lateral view.
36. *Cornicularia indirecta*, ♀ epigynum.

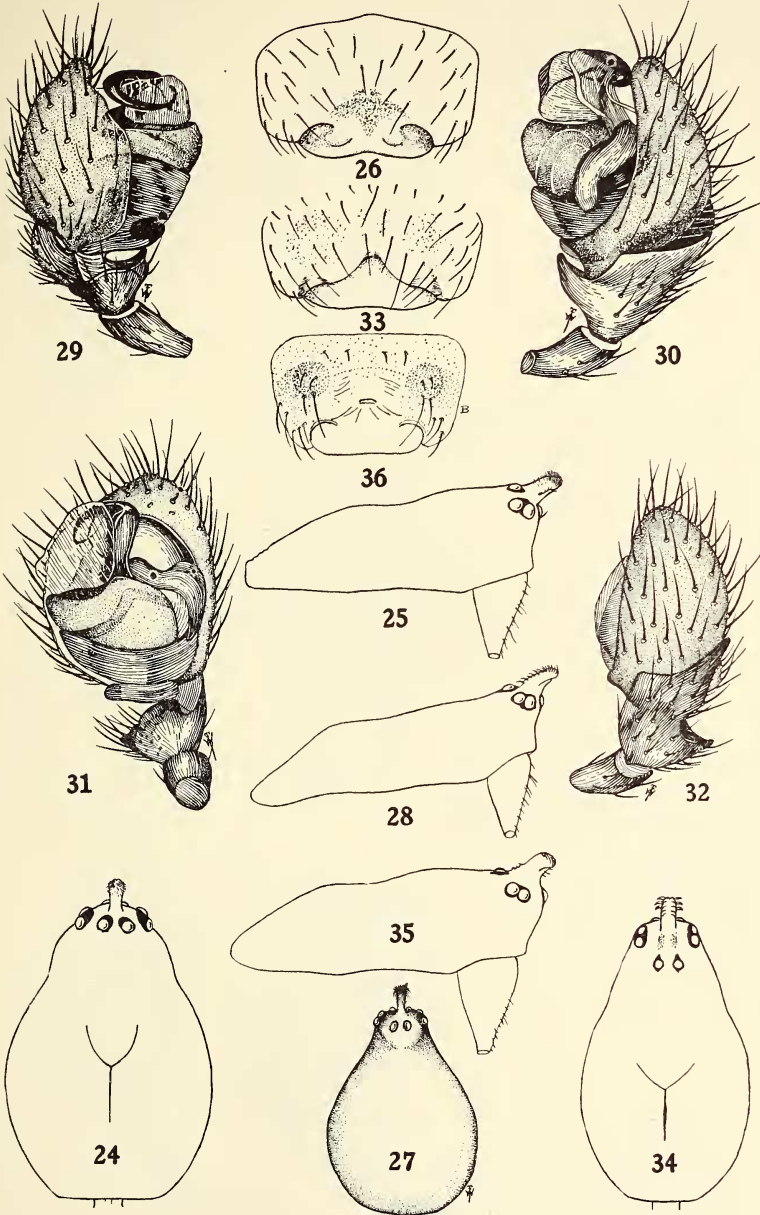


PLATE XXVIII

37. *Cornicularia minuta*, ♂ cephalothorax, dorsal view.
38. *Cornicularia minuta*, ♂ cephalothorax, lateral view.
39. *Cornicularia minuta*, ♂ right palpus, dorsal view.
40. *Cornicularia minuta*, ♂ right palpus, mesal view.
41. *Cornicularia minuta*, ♂ right palpus, lateral view.
42. *Cornicularia minuta*, ♀ epigynum.
43. *Cornicularia pallida*, ♂ cephalothorax, dorsal view.
44. *Cornicularia pallida*, ♂ cephalothorax, lateral view.
45. *Cornicularia pallida*, ♂ right palpus, dorsal view.
46. *Cornicularia pallida*, ♂ right palpus, mesal view.
47. *Cornicularia pallida*, ♂ right palpus, lateral view.
48. *Cornicularia pallida*, ♀ epigynum.
49. *Cornicularia tibialis*, ♂ cephalothorax, dorsal view.
50. *Cornicularia tibialis*, ♂ cephalothorax, lateral view.
51. *Cornicularia tibialis*, ♂ dorsal view.

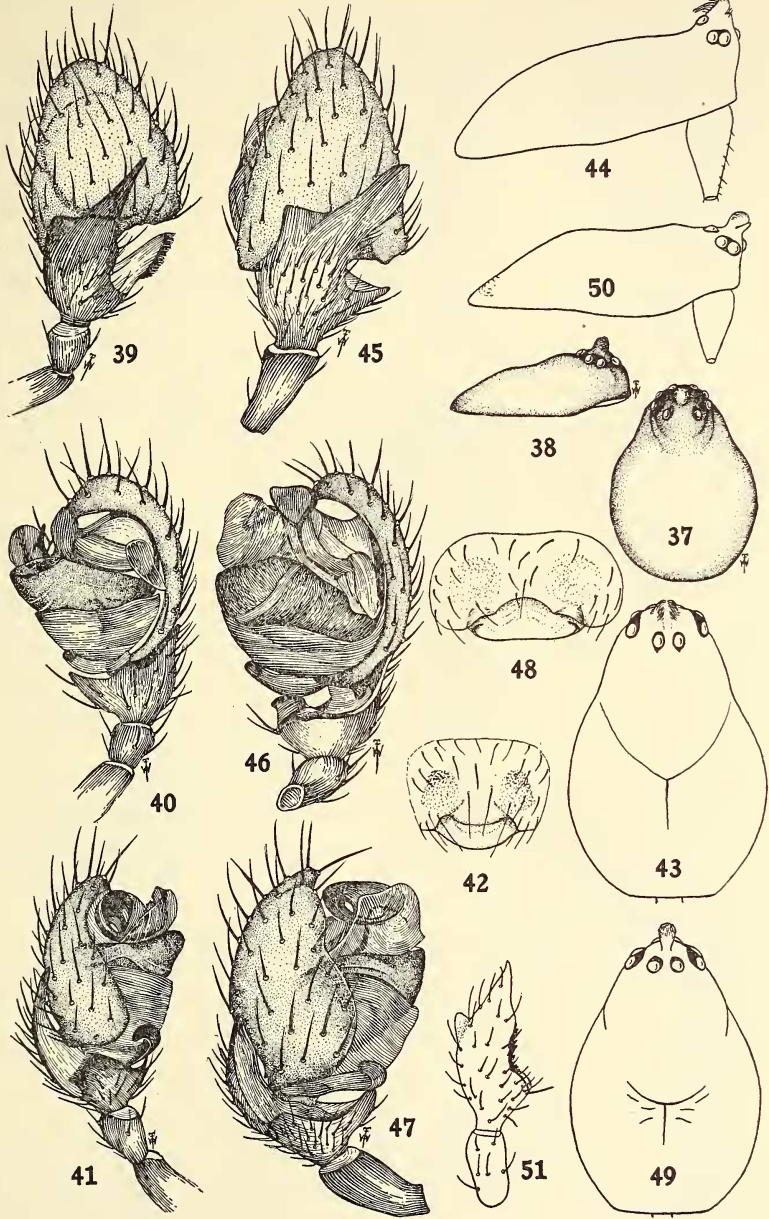


PLATE XXIX

52. *Cornicularia tumida*, ♂ cephalothorax, dorsal view.
53. *Cornicularia tumida*, ♂ cephalothorax, lateral view.
54. *Cornicularia tumida*, ♂ right palpus, dorsal view.
55. *Cornicularia tumida*, ♂ right palpus, lateral view.
56. *Cornicularia tumida*, ♂ right palpus, ventral view.
57. *Paracornicularia bicapillata*, ♂ cephalothorax, dorsal view.
58. *Paracornicularia bicapillata*, ♂ cephalothorax, lateral view.
59. *Paracornicularia bicapillata*, ♂ right palpus, ventral view.
60. *Paracornicularia bicapillata*, ♂ right palpus, lateral view.
61. *Paracornicularia bicapillata*, ♂ right palpus, mesal view.
62. *Paracornicularia bicapillata*, ♀ epigynum.
63. *Tigellinus tricornis*, ♂ head, dorsal view (after Emerton).
64. *Tigellinus tricornis*, ♂ head, lateral view (after Emerton).
65. *Tigellinus tricornis*, ♂ right palpus, dorsal view.
66. *Tigellinus tricornis*, ♂ right palpus, lateral view.

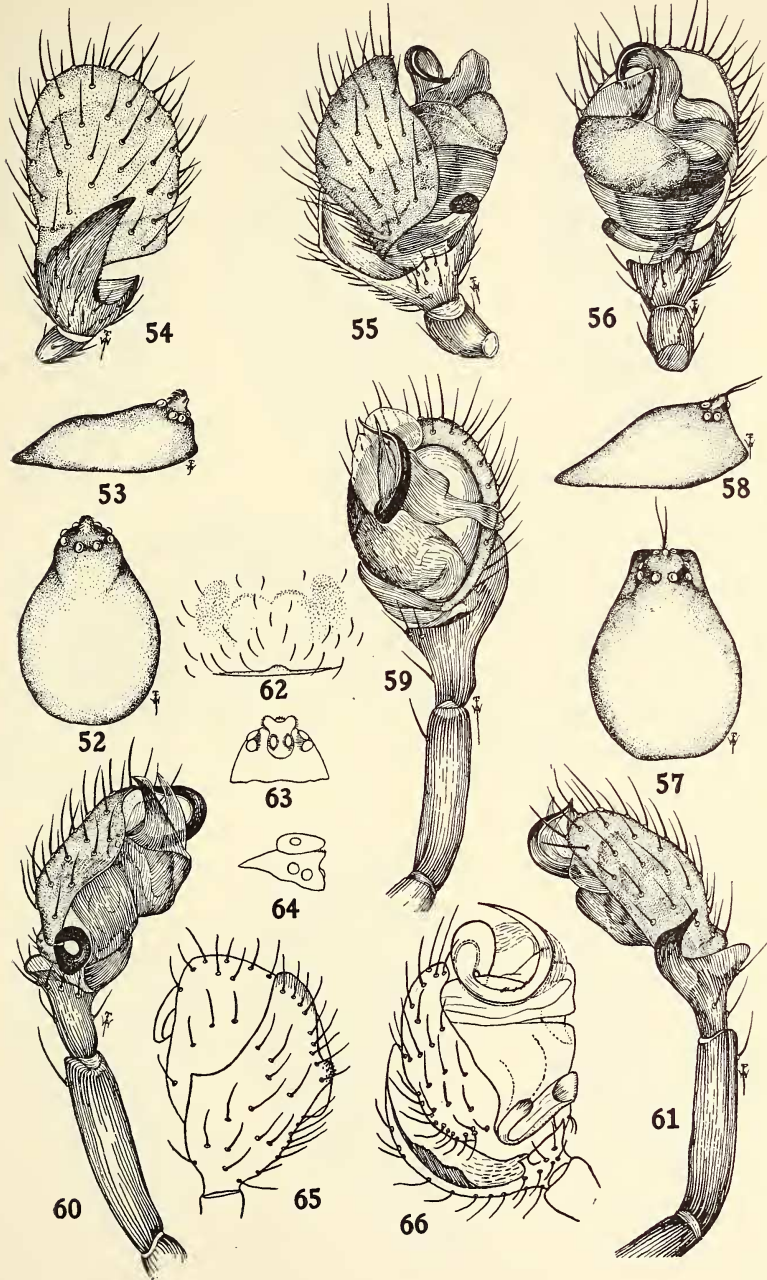


PLATE XXX

67. *Walckenaera acuminata*, ♂ right palpus, dorsal view.
68. *Walckenaera acuminata*, ♂ right palpus, lateral view.
69. *Walckenaera acuminata*, ♂ right palpus, ventral view.
70. *Walckenaera acuminata*, ♂ right palpus, mesal view.
71. *Walckenaera vigilax*, ♂ cephalothorax, lateral view.
72. *Walckenaera vigilax*, ♂ right palpus, dorso-lateral view.
73. *Walckenaera vigilax*, ♂ right palpus, ventral view.
74. *Walckenaera vigilax*, ♂ right palpus, mesal view.
75. *Walckenaera vigilax*, ♀ epigynum.

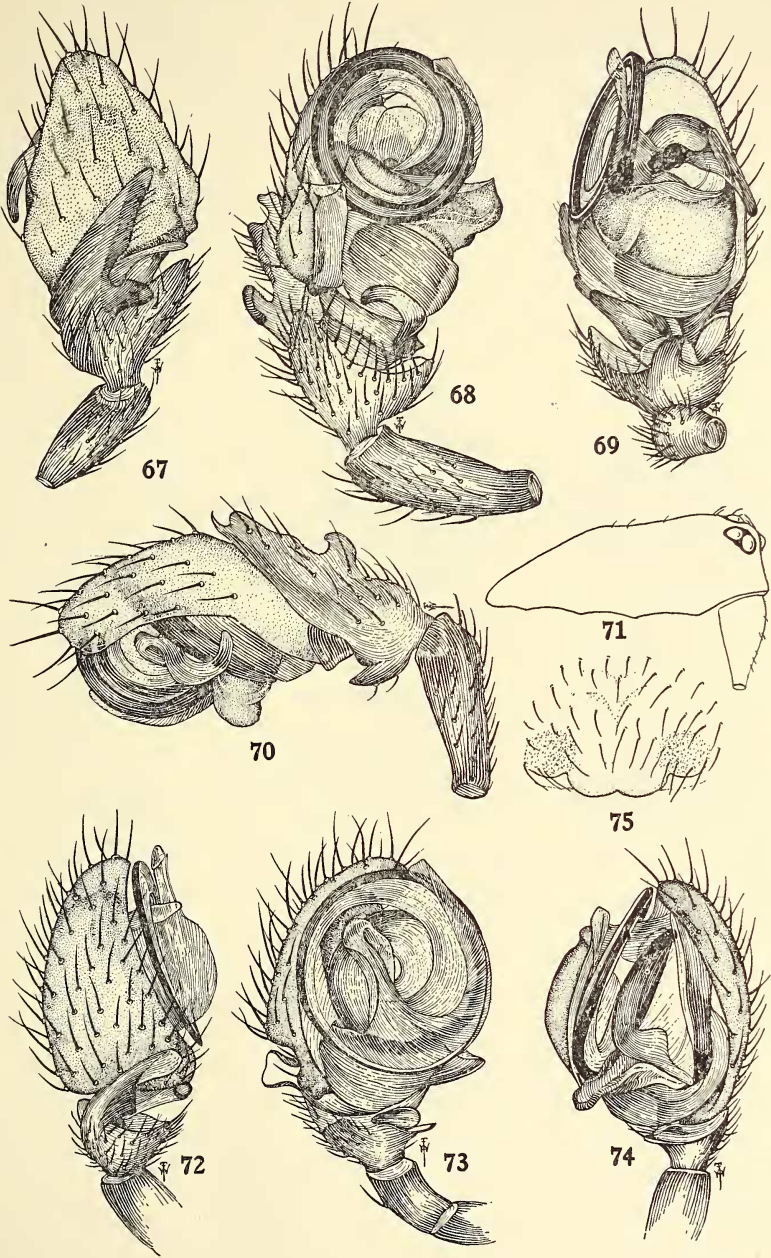
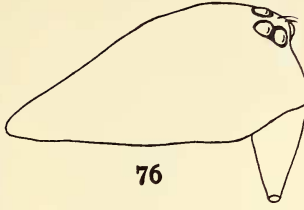


PLATE XXXI

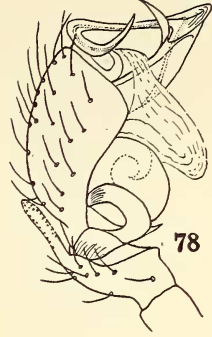
76. *Epiceraticelus fluvialis*, ♂ cephalothorax, lateral view.
77. *Epiceraticelus fluvialis*, ♂ right palpus, dorsal view.
78. *Epiceraticelus fluvialis*, ♂ right palpus, lateral view.
79. *Epiceraticelus fluvialis*, ♀ epigynum.
80. *Pelecopsis sculptum*, ♂ cephalothorax, dorsal view.
81. *Pelecopsis sculptum*, ♂ cephalothorax, lateral view.
82. *Pelecopsis sculptum*, ♂ right palpus, dorsal view.
83. *Pelecopsis sculptum*, ♂ right palpus, lateral view.
84. *Pelecopsis sculptum*, ♂ right palpus, mesal view.
85. *Pelecopsis sculptum*, ♀ epigynum.
86. *Pelecopsis excavatum*, ♂ cephalothorax, dorsal view.
87. *Pelecopsis excavatum*, ♂ cephalothorax, lateral view.
88. *Pelecopsis excavatum*, ♀ epigynum.



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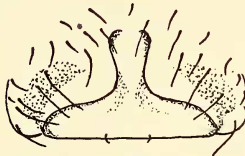
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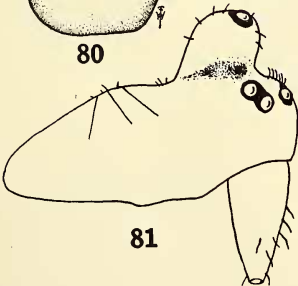
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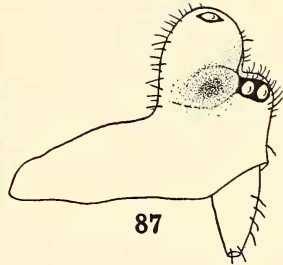
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PLATE XXXII

89. *Pelecopsis excavatum*, ♂ right palpus, lateral view.
90. *Pelecopsis excavatum*, ♂ right palpus, ventral view.
91. *Pelecopsis excavatum*, ♂ right palpus, mesal view.
92. *Pelecopsis moestum*, ♂ cephalothorax, dorsal view.
93. *Pelecopsis moestum*, ♂ cephalothorax, lateral view.
94. *Pelecopsis moestum*, ♂ right palpus, dorsal view.
95. *Pelecopsis moestum*, ♂ right palpus, meso-ventral view.
96. *Pelecopsis moestum*, ♂ right palpus, embolic division and tegulum.
97. *Pelecopsis moestum*, ♀ epigynum.

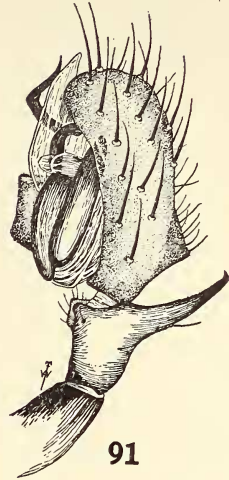
The preparation of many of the drawings, by Albert W. Force, of Ithaca, N. Y. and Miss Helen Zorsch, of Rochester, N. Y., was made possible by a grant from the Heckscher Research Foundation at Cornell University.



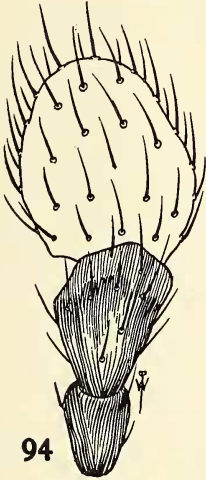
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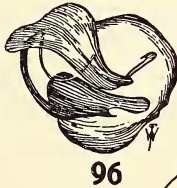
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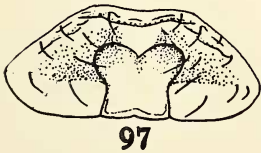
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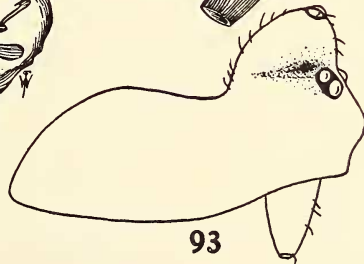
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